IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

| | |
|---|---|
| IARNACH TECHNOLOGIES LTD.,<br><br>Plaintiff,<br>v.<br><br>VERIZON BUSINESS NETWORK SERVICES LLC, VERIZON ENTERPRISE SOLUTIONS, LLC, CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS, INC., VERIZON DATA SERVICES LLC, VERIZON BUSINESS GLOBAL LLC, and VERIZON SERVICES CORP.<br><br>Defendants. | Civil Action No. 2:23-cv-00631<br><br>**JURY TRIAL DEMAND** |

**PLAINTIFF IARNACH TECHNOLOGIES LTD.'S**
**OPENING CLAIM CONSTRUCTION BRIEF**

# Table of Contents

# Table of Authorities

**Cases**

## I. Terms for Construction

### A. "adjustment time Δt" ('242 Claims 1, 3, 5, 7)

| Iarnach's Construction | Defendant's Construction |
|---|---|
| No construction necessary; plain and ordinary meaning. | "a constant that is determined by the OLT to be used to adjust the size of the quiet window" |

"Adjustment time Δt" is a readily understandable term that uses the generally understood meaning of the words "adjustment" and "time." Verizon's construction seeks to limit the claims to a particular embodiment and introduces ambiguity into the term. No construction is necessary.

#### 1. Intrinsic Evidence

The '242 claims define the functionality of "adjustment time Δt." Claim 1 requires "obtaining an open time of the quiet window according to the determined required period T during performing the ranging on the ONU and a preset adjustment time Δt." This means the adjustment time is something used when obtaining the open time of the quiet window. Claim 7 states that the value of adjustment time Δt can be increased or decreased depending on whether ranging on a particular ONU is successful. This indicates the adjustment time can change (*i.e.*, it is adjustable).

The specification provides further guidance, emphasizing that the adjustment time Δt can change. For example, the adjustment time may be increased or decreased based on the results of ranging on an ONU. '242 Patent at 5:64-6:2. The adjustment time can also be different at different times for the same ONU. The specification explains that "the values of the Δt in multiple times at which the OLT performs ranging on the ONU may be the same or different." *Id*. at 5:40-42.

#### 2. Extrinsic Evidence

Both "adjustment" and "time" have well-understood meanings, and "adjustment time Δt" uses both words in their customary manner. *See* Ex. A (American Heritage, 5th ed.) ("adjustment: the act of adjusting or the state of being adjusted; a modification, fluctuation, or correction"); Ex. B (New Oxford, 2nd ed.) ("adjust: alter or move something slightly in order to achieve the desired

fit"); Ex. C (American Heritage, 5th ed.) ("time: a number, as of years, days, or minutes, representing such an interval"); Ex. D (New Oxford, 2nd ed.) ("time: time or an amount of time as reckoned by a conventional standard; a moment or definite portion of time allotted, used, or suitable for a purpose"). A jury will easily understand these words without further construction.

**3. Verizon's Proposed Construction**

Verizon's proposed construction seeks to limit the claims to a particular embodiment (5:39-40). *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). This leads to multiple issues. First, the word "determined" is inconsistent with other claim language. Claim 1 requires that the open time of the quiet window is "obtained" according to the required period T and the adjustment time Δt. But other clauses in the claim use the word "determining." If the patentee intended for the term to mean "determined," it would have used that word.

Second, Verizon seeks to define adjustment time as "a constant." This phrase may confuse the jury given that claim 7 (and 5:64-6:2 of the specification) teach that the adjustment time can be increased or decreased based on whether ranging is successful. Further, the specification teaches that the adjustment time is variable in different circumstances. *See* '242 Patent at 5:39-42. Additionally, the claims already require "a ***preset*** adjustment time." The Court should adopt the phrase used in the claim, rather than import a word from the specification.

**B. "round trip delay (RTD)" ('242 Claims 1-3)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | "the time between when the OLT sends a signal to an ONU until when it receives a signal back, including any pre-assigned and/or random delays" |

"Round trip delay (RTD)" is an easily understood term that does not require construction. Conversely, Verizon's proposed construction includes components (pre-assigned delays and random delays) that the specification teaches are ***excluded*** from the round trip delay.

**1. Intrinsic Evidence**

Claims 1 and 2 set forth the contours of the round trip delay. First, claim 1 recites "obtaining a Round Trip Delay (RTD) between an Optical Line Terminal (OLT) and an Optical Network Unit (ONU)." '242 Patent at 7:50-52. This indicates the round trip delay is between the OLT and the ONU. Second, claim 1 recites "opening a quiet window used for the ranging for the ONU according to the RTD to perform the ranging on this ONU." *Id*. at 7:53-55. This indicates the quiet window used for ranging is opened according to the round trip delay.

Claim 2 requires that the round trip delay is obtained "according to the sending time of the serial number request message, the receiving time of the serial number response message, a random delay of the ONU, and a pre-assigned delay and a start time that are preset by the OLT for the ONU responding to the serial number request." *Id*. at 8:20-26. Taken together, these limitations describe where the round trip delay is measured, how it is calculated, and how it is used.

Figures 2 and 3 of the specification illustrate how the OLT obtains the round trip delay. In step 201 of Figure 2, the OLT obtains the round trip delay. '242 Patent at 4:27-28. One possible technique for obtaining the round trip delay (as in claim 2) is by sending a serial number request. *Id*. at 4:29-30. Figure 3 describes how to obtain the round trip delay by sending a serial number request. *Id*. at 4:35-37. In that embodiment, the OLT can consider several factors: T1 – the sending time of the serial number request (*id*. at 4:38-41); T2 – the receiving time of the serial number response (*id*. at 4:54-57); a Pre-Assigned Delay (a waiting delay when the ONU is processing the serial number request) (*id*. at 4:51-53); t – a random delay (*id*. at 4:49); and a Start Time (*id*. at 4:50). Round trip delay is then calculated using the following formula: RTD = T2 – T1 – t – Pre-assigned Delay – Start Time. *Id*. at 4:58-63. However, the specification makes clear that this is not the only way to calculate round trip delay. *See id*. at 4:64-2:2 ("Round trip delay may also be obtained by adding other parameters or reducing the above-mentioned parameters on the basis of

the parameters provided by the present invention.").

**2. Extrinsic Evidence**

The extrinsic evidence further demonstrates that "round trip delay" has a generally understood meaning to POSITAs. *See* Ex. E (IEEE Dictionary) ("the sum of the absolute delays on an outgoing path and return path"); Ex. F (Dictionary of Communications Technology) ("the amount of time it takes for an electrical signal to travel from one end of a transmission medium to the other and back"). These definitions are consistent with how the term is used in the '242 Patent. Verizon's expert—Dr. Brandt-Pearce—does not offer any opinion on this term.

**3. Verizon's Proposed Construction**

Verizon's construction contradicts the specification. In Verizon's construction, the round trip delay includes "any pre-assigned and/or random delays." But the specification teaches that pre-assigned delays and random delays are ***excluded*** from the round trip delay:

> RTD = T2 (the receiving time of the serial number response message) – T1 (the sending time of the serial number request message) – t (the random delay) – Pre-assigned Delay (the ONU processing time) – Start Time.

'242 Patent at 4:58-63. As shown in the formula, pre-assigned delays (relating to ONU processing time) and random delays are explicitly excluded from the definition of round trip delay.

**C. "required period T" ('242 Claims 1, 6)**

| Iarnach's Construction | Defendant's Construction |
|---|---|
| No construction necessary; plain and ordinary meaning. | "A sum of the round trip delay and one or more of the following delays: a pre-assigned delay when the ONU that is in the ranging state responds to the ranging request and a start time of sending the ranging response" |

Required period T is defined by the surrounding claim language and requires no construction. Conversely, Verizon's proposed construction seeks to import language from dependent claim 6 into independent claim 1.

**1. Intrinsic Evidence**

Claim 1 states that the required period T is determined "during performing the ranging on the ONU." '242 Patent at 7:59-60. Claim 1 further requires obtaining an open time of the quiet window according to the required period T and a preset adjustment time. *Id*. at 7:61-64. From these limitations, a POSITA would understand that the required period T is determined during ranging, and it is a component of the open time of the quiet window.

Dependent claim 6 requires that "the determined required period T during performing ranging on the ONU is a sum of the round trip delay and one or more of the following delays: a pre-assigned delay when the ONU that is in the ranging state responds to the ranging request and a start time of sending the ranging response." '242 Patent at 8:57-62. Verizon's proposed construction would incorporate the ***entirety*** of dependent claim 6 into independent claim 1.

The specification teaches that the required period T can be obtained using the round trip delay, a pre-assigned delay, and a start time of the ONU sending the ranging response message. '242 Patent at 5:18-24. However, the specification makes clear that this language (which is similar to Verizon's proposed construction) is just a preferred embodiment. *See id*. at 5:27 ("according to, but not limited to…."); 6:65 ("Preferably, the determined required period T…."). The required period T can also be obtained by "adding other parameters or reducing the above-mentioned parameters on the basis of the parameters provided by the present invention." *Id*. at 5:28-32.

**2. Extrinsic Evidence**

Dictionary definitions show that "required" and "period" both have commonly understood meanings. "Required" is defined as "needed; essential" (Ex. G (American Heritage, 5th ed.)) and "need for a particular purpose; cause to be necessary." Ex. H (New Oxford, 2nd ed.). "Period" is defined as "an interval of time characterized by the occurrence of a certain condition, event, or phenomenon" (Ex. I (American Heritage, 5th ed.)) and "a length or portion of time." Ex. J (New Oxford, 2nd ed.). The '242 Patent uses these generally accepted definitions.

### 3. Verizon's Proposed Construction

Verizon's proposed construction is flawed because it imports language from dependent claim 6 into independent claim 1. The doctrine of claim differentiation creates a presumption that limitations found in a dependent claim are not included in the independent claim. *See GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1310 (Fed. Cir. 2014); *Kaneka Corp. v. Xiamen Kingdomway Group*, 790 F.3d 1298, 1306 ("[I]t would be improper to import a claim limitation from a dependent claim into an independent claim."). Thus, there is a presumption that Verizon's proposed language (which is included in claim 6) is not included in claim 1.

Additionally, Verizon's proposed construction excludes an embodiment from the specification. The required period T is determined "according to, ***but not limited to***, the round trip delay and the above-mentioned parameters." '242 Patent at 5:25-28 (emphasis added). The specification explains that the required period T "may also be obtained by adding other parameters or reducing the above-mentioned parameters on the basis of the parameters provided by the present invention." *Id*. at 5:28-32. Verizon's proposal, which restricts how the required period T is calculated, would exclude this embodiment.

## D. "waiting state" ('359 Claim 1)

| Iarnach's Construction | Defendant's Construction |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | "O2 state" |

This term should be given its plain and ordinary meaning. Verizon seeks to limit "waiting state" to a state that is named "O2 state," regardless of what happens in the "O2 state." But "O2 state" (as used in the '359 Patent and the relevant PON standards) simply denotes a second operational state, and the claimed "waiting state" is not required be a second operational state.

### 1. Waiting State Should Be Given Its Plain and Ordinary Meaning

The plain and ordinary meaning of this term is simple: a ***state*** where the ONU ***waits*** to

receive upstream burst overhead parameter values or sets. Within the context of claim 1, the ONU waits to receive an upstream burst overhead parameter value(s) or parameter set(s) that it will use in transmissions to the OLT. Schofield Dec. ¶¶18-20; '359 Patent at 22:3-7, 10-13. Due to that context, a POSITA would understand that at least one purpose of the waiting state is to define a period for the ONU to receive upstream burst overhead parameter value(s) or set(s) that it will use when transmitting to the OLT. Schofield Dec. ¶¶18-20. The term "waiting state" is likewise used in this context in claims 12 and 14. *Id*. The specification confirms this meaning. *Id*. ¶21 (citing '359 Patent at 5:2-4 ("receive, in a waiting state, a parameter value or an identification of one default upstream burst overhead parameter set sent by the OLT to the ONU"); 5:9-11; 6:26-28; 6:29-32; 7:47-51)); *see also id*. ¶22 (citing '359 Patent at 2:46-49).

The plain and ordinary meaning is likewise confirmed by extrinsic evidence. Schofield Dec. ¶¶18, 23, 24, 27. For example, Oxford Dictionary of Computing defines "wait state" as "[a] situation in which one component of a system is unable to proceed until some other component has completed an operation." *Id*. ¶23 (citing Ex. K). Similarly, the Comprehensive Dictionary of Electrical Engineering defines "wait state" as "a bus cycle during which a CPU waits for a response from a memory or input-output device." *Id*. (citing Ex. L). Verizon's expert incorrectly asserts that "waiting state" does not have a plain and ordinary meaning because "the term 'waiting state' is not a term of art." Brandt-Pearce Dec. ¶¶83, 89 (noting that "'waiting state' is not listed in the GPON Recommendation[.]"). But whether a phrase is a "term of art" does not control whether it has a plain meaning. And technical definitions of "wait state" show that any technical understanding of "waiting state" is consistent with the plain meaning. Schofield Dec. ¶¶23, 24, 27.

**2. Defining Wait State as an "O2 State" Does Not Clarify Its Meaning**

Even if Verizon's construction is adopted, the term "O2 state" itself can have different meanings. It is unclear what Verizon even contends O2 state means: (a) a state that is literally

named "O2 state" in a particular specification or standard; (b) only the "O2 state" of the prior art GPON standard; or (c) something else. Adopting Verizon's construction will fail to aid the jury and cause confusion. Iarnach can only assume Verizon intends to argue O2 state must have a narrow or literal meaning as a state defined in some past or future standard as an O2 state. Verizon's attempt to tie a wait state to the second operational state of an ONU places form over substance, as not every O2 state will necessarily be a wait state. A POSITA would not understand "waiting state" to be a rigid application of a single label of a state number (such as "O2") from a prior art standard. *See* Schofield Dec. ¶¶24-27.

**3. There is No Lexicography for This Term**

Verizon's attempt to define "waiting state" as "O2 state" is entirely arbitrary. O2 state simply denotes a second operational state. But that second operational state is dependent entirely on what the other states are and what the ordering will be. A waiting state need not be the second operational state in any particular standard or specification. Not surprisingly, as shown below, the '359 Patent has not defined "waiting state" through lexicography or otherwise.

The standard for finding lexicography is "exacting." *Implicit, LLC v. Trend Micro, Inc.*, 2017 WL 1190373 at *6 (E.D. Tex. Mar. 29, 2017) (quoting *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014)). "To act as his own lexicographer, the patentee must 'clearly set forth a definition of the disputed claim term,' and 'clearly express an intent to define the term.'" *Implicit*, 2017 WL 1190373 at *7 (citing *GE Lighting*, 750 F.3d at 1309; and *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). "The patentee's lexicography must appear 'with reasonable clarity, deliberateness, and precision.'" *Implicit*, 2017 WL 1190373 at *7 (citing *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998)). Verizon cannot meet this high standard.

**a. The "i.e." Language is Exemplary, Not Definitional**

Verizon's expert argues that "the specification defines 'waiting state' to mean 'O2 state' by its repeated use of 'i.e.'" Brandt-Pearce Dec. ¶¶85 (citing '359 Patent at 1:41-43; 7:49-52). But an analysis of the specification, according to applicable Federal Circuit cases, shows that "i.e." is used in the '359 Patent only to cite examples, not to define terms. Nothing in the specification mandates that a waiting state be the second operational state of a particular standard.

While the use of language like "i.e." in a specification can—in some instances—be definitional, that is not so where a specification uses that language "as citing examples" or "as exemplary," as is the case here. *See Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1326 (Fed. Cir. 2012). Indeed, Federal Circuit precedent requires a "contextual analysis" of the entire specification to determine "whether the patentee's use of 'i.e.' was definitional," *id*., and as part of that analysis, "[i]t is necessary to consider the specification as a whole, and to read all portions of the written description, if possible, in a manner that renders the patent internally consistent." *Id*. (quoting *Pfizer, Inc. v. Teva Pharms, USA, Inc.*, 429 F.3d 1364, 1373 (Fed. Cir. 2005)).

For example, in *Dealertrack*, the court rejected an argument that specification language "routing, i.e., sequencing and timing" was lexicography defining the term "routing" as "sequencing and timing." *Id*. In analyzing the issue, the court conducted "precisely the type of contextual analysis we required in *Pfizer*, in determining whether the patentee's use of 'i.e.' was definitional." *Id*. (citing *Pfizer*, 429 F.3d at 1373-74). As a result of that analysis on the specification at issue, the court found that "internal consistency can only be achieved by reading 'i.e.' as exemplary," where "the most natural reading of the 'i.e.' here is as citing examples, which … is the way it was used throughout the specification in other contexts." *Id*.

Here, there has been no showing of a clear intent to use "i.e." to define the term "waiting state." For example, the '359 Patent specification uses "i.e." language eleven times. '359 Patent at

1:16-18, 41-43, 46-47; 7:30-31, 40-41, 49-51; 9:27-29; 11:27-29; 12:32-34; 13:41-43; 17:24-27. Notably, these eleven uses of "i.e." do not serve to define the terms preceding "i.e."—they are instead providing examples in every instance. For example, regarding the prior art, "a serial number state" is not always ***defined*** as an "O3 state"—that is just an example "serial number state" in the prior art GPON standard. '359 Patent at 1:46-47. Likewise, with respect to "i.e." language describing preferred embodiments, "upstream burst overhead set" is not defined as "set 3," and "the general upstream burst overhead parameter set" is not defined as "set 1"—those are just examples of such sets in the disclosed embodiments. '359 Patent at 9:27-29, 17:24-27. This pattern shows that, as in *Dealertrack*, "i.e." language was used in the '359 Patent "as citing examples" or "as exemplary." *Dealertrack*, 674 F.3d at 1326.

Moreover, there are only two uses of "i.e." with respect to "waiting state" in the specification: one pointing out an example "waiting state" in the prior art GPON standard, and another pointing out an example "waiting state" in preferred embodiments, '359 Patent at 1:41-43, 7:49-51, and neither defines waiting state as always being the second operational (O2) state: the first is an example of a waiting state in the prior art GPON standard (GPON's second operational state), and another is an exemplary embodiment of a waiting state as shown in Figures 3-9 (a second operational state in the embodiments). The claims use meaningful identifiers for various states, as opposed to simply enumerating an operational state. And the specification uses the term "waiting state" ***without "i.e."*** twelve times without referencing the O2 state (eighteen times if counting the claim language). *See* '359 Patent at 2:38, 44; 5:2,9; 6:28,32; 18:49,52; 19:43,51; 21:6,9; 22:6, 13; 26:39, 47; 28:24, 28. In short, "i.e." is not used definitionally in the '359 Patent, either generally or with respect to "waiting state" specifically.

**b. Verizon's Other Lexicography Arguments Also Fail**

Verizon's expert's additional arguments, that the figures show a definition of waiting state,

Brandt-Pearce Dec. ¶¶86, 87 (citing Figs. 1, 3-9), and that "the specification uses nearly identical language as claim 1, but uses 'O2 state' in place of waiting state," *id*. ¶87 (citing '359 Patent claim 1 and 7:54-57), should likewise be rejected. First, no figure shows a definition of the claim term "waiting state." Figure 1 shows an example "waiting state" of the prior art GPON standard, named "O2 state." *See* Schofield Dec. ¶24. And Figures 3-9, showing preferred embodiments, do not even use the term "waiting state." That Figures 3-9 use the phrase "O2 state" standing "alone is not sufficient to inject such a limitation into the claims." *Implicit*, 2017 WL 1190373 at *11 (citing *Thorner*, 669 F.3d at 1366). "It is likewise not enough that the only embodiments, or all of the embodiments, contain a particular limitation." *Thorner*, 669 F.3d at 1366. And, using different language in the claim ("waiting state") than in the cited specification text ("O2 state") does not show a definition. Instead, the claim language is intentionally broader.

**E. "different levels of link quality" ('359 Claim 1)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | Indefinite. |

This claim term uses simple words, "different levels of link quality," according to their well-understood meaning in the art. Iarnach contends they should be given their plain and ordinary meaning. Verizon argues the term "lacks any certainty as to its meaning or scope" because a POSITA would be unclear as to whether "different levels of link quality" means different levels of uplink link quality, different levels of downlink link quality, or different levels of uplink and downlink link quality. Brandt-Pearce Dec. ¶¶91, 99. But link quality is a concept that is familiar to a POSITA that can be applied to different types of links, and nothing in the language "different levels of link quality" requires limiting "link quality" to the quality of any specific type of link or direction of transmission. While the claim may be broad in that respect, "breadth is not indefiniteness." *See BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1367 (Fed. Cir. 2017).

As such, this term should be given its plain and ordinary meaning.

**1. The Intrinsic Evidence Confirms That "Different Levels of Link Quality" is Readily Understood by POSITAs per its Plain and Ordinary Meaning**

A POSITA who has read the '359 claims, specification, and prosecution history would understand this term with reasonable certainty to mean just what it says: "different levels of link quality." Schofield Dec. ¶28. For example, the specification describes link quality in terms of error rate, measured using a "bit interleaved parity (BIP) detection method or a frequently used FEC result and the number of correction bits." *Id*. ¶34 (citing '359 Patent at 9:39-46; 11:42-52). A POSITA would understand the FEC result and number of correction bits is also known as the Bit Error Rate (BER). *Id*. Different levels of that link quality could include, *e.g.*, two levels: one level with BER at or above specification and one with BER below specification. *Id*. ¶28.

Other intrinsic evidence also supports this understanding of a POSITA. For example, U.S. Pat. No. 7,600,171, which was cited during prosecution of the '359 Patent, states that "link quality is monitored based on BER=10-9[.]" *Id*. ¶36 (citing Ex. M and Ex. N). In other words, a patent considered by the Examiner during prosecution confirms a POSITA's understanding of "link quality" as being based on an objective performance. *Id*.

Verizon's expert argues that "[t]he specification…references both uplink and downlink specific terms, but never describes what the generic 'different levels of link quality' refers to." Brandt-Pearce Dec. ¶94. Both portions of that argument are inaccurate. First, the specification uses refers to "quality" of links without reference to uplink or downlink a number of times, including: "optical fiber link quality" (1:26-30), "the quality of some links" (2:1-4), "levels of link quality" (2:31-32, 5:1-16, 6:19-20, 7:43, 18:41, and 19:43-58), "typical link quality"/"worse than the typical link quality"/"better than the typical link quality" (8:53-9:4), "link quality" as "good"/"bad"/"OK" (Tables 1/7/10), and "link[s]" with "good quality"/"bad quality" (Figs. 3-9).

Second, the specification describes at least three different exemplary "levels" of link quality: at the designed performance level ("OK" or "typical link quality"), above the designed performance level ("good" or "better than the typical link quality"), and below the designed performance level ("poor" or "worse than the typical link quality"). Schofield Dec. ¶32 (citing '359 Patent at 8:54-9:6; 9:39-46; 11:42-52; Tables 1, 4, 6, 7, 10). The specification also describes having a burst profile that corresponds to each of those levels of link quality. *Id*. (citing '359 Patent at 8:54-9:6). For example, "set 1" includes "general upstream burst overheard parameters" that "correspond to parameters required by the typical link quality," "set 2" includes "enhanced upstream burst overhead parameters which correspond to parameters used in situations that the link quality is worse than the typical link quality," and "set 3" includes "weakened upstream burst overhead parameters which correspond to parameters used in situations that the link quality is better than the typical link quality." *Id*. (citing Tables 4, 6, 8, Figures 3-9).

Verizon's expert also refers to "a generic reference to link quality" as being insufficient for claim definiteness. Brandt-Pearce Dec. ¶96. But distinguishing between uplink link quality and downlink link quality is not required. At most that serves to make the claim language broad, and "breadth is not indefiniteness." *See BASF*, 875 F.3d at 1367.

The intrinsic evidence thus confirms that there is no ambiguity as to infringement: a system meets this limitation if it defines parameters according to different levels of "link quality" (*i.e.*, different levels of error rate such as good, bad, or OK). *See, e.g.*, '359 Patent at Tables 1, 7, and 10. The claim simply does not have a limitation that "level of link quality" must be the quality of any particular type of link. That does not render the claim term indefinite.

**2. The Extrinsic Evidence, Including Papers Authored by Verizon's Expert, Confirms That "Different Levels of Link Quality" is Readily Understood by POSITAs per its Plain and Ordinary Meaning**

The words "level," "link," and "quality" are defined in various dictionaries. Schofield Dec.

¶37 (citing Ex. O, Ex. P, Ex. Q). Tying the concepts in those definitions together, the "Dictionary of Communications Technology" provides the following definition of "Bit Error Rate Test (BERT)," confirming the specification's reference to FEC result and correction bits in relation to levels of link quality:

> A data communications test measurement in which the total number of received errors are divided by the total number of received data bits. The smaller the resultant number, the higher is the quality of the communications path.

*Id*. (citing Ex. R). Indeed, the designers of optical systems know a specific desired performance level (in terms of, for example, bit error rate (BER)) for that system. *Id*. ¶31. As such, an OLT can provide overhead parameter sets for at least two different levels of link quality (above performance level BER and below performance level BER). *Id*.

In a 2007 ICC paper, Verizon's expert referred to "quality of a lightpath" and "quality of the optical signal" as calculated by BER, without specifying whether that quality related to an uplink or a downlink. Ex. S (Brandt-Pearce Paper No. 1) at 1. The optical links discussed in that paper were "bidirectional links," *id*. at 2, 4, suggesting the existence of both an uplink and a downlink. Brandt-Pearce Dec. ¶96. Likewise, in a 2012 Globecom paper, Verizon's expert referred to "signal quality" and "quality-of-transmission" as calculated by BER. Ex. T (Brandt-Pearce Paper No. 2) at 1. The optical links discussed in that paper were also "bidirectional links." *Id*. at 2, 4. In both papers, Dr. Brandt-Pearce used these "quality" terms without reference to whether they were "uplink link quality" or "downlink link quality."

The current arguments from Verizon's expert, on the other hand, should be rejected. For example, Dr. Brandt-Pearce argues in this case that there is a difference between measuring link quality for an uplink and link quality for a downlink. Brandt-Pearce Dec. ¶¶96-98. Specifically, she refers to "performance monitoring" in the prior art GPON recommendation as showing

monitoring in both the uplink and the downlink, arguing that as a result GPON "specifically discloses that the uplink quality and the downlink quality are independent qualities that are separately detected" and that "[t]he GPON Recommendation does not disclose how to detect a general link quality." Brandt-Pearce Dec. ¶¶97, 98.

But Verizon's expert is incorrect. The GPON standard confirms that, for both uplink and downlink, the same error detection is used to monitor performance ("BIP error," which is consistent with what is stated at 9:39-46 of the '359 Patent specification regarding use of BIP detection in determining a level of link quality). *Id*. ¶97 (showing Section 11.2 "Performance monitoring" of the GPON Recommendation which includes monitoring "ERRi," the BIP error of the link from the ONU indexed "i" to the OLT, and "ERR," the BIP error of the link from the OLT to the ONU). But even if two separate measurements were used for uplink and downlink, that does not mean that a broader term like "levels of link quality" cannot encompass them both.

**F. "the optical line terminal or the optical network terminal unit determining the upstream burst overhead parameters suitable for the optical network unit according to the transmission quality" ('359 Claim 1)**

| Iarnach's Construction | Defendant's Construction |
|---|---|
| No construction necessary; plain and ordinary meaning. | Indefinite. |

No construction is necessary for this term. A POSITA who has read the claims and specification would understand the term with reasonable certainty. Verizon alleges that it is indefinite for "require[ing] an impossibility" because, they argue, an ONU or OLT cannot "determine" a parameter set when there is only one parameter set. Brandt-Pearce Dec. ¶101. But to reach that conclusion, Verizon and its expert relies on a number of inaccurate factual premises and incorrect interpretation of claim definiteness. Verizon cannot meet its burden of proving indefiniteness by clear and convincing evidence, and their argument should be rejected.

**1. This Term is Well Understood by POSITAs**

The specification provides a number of examples of this "determining" step, and a POSITA would not find that the step is somehow impossible to perform. Schofield Dec. ¶¶39-48. For example, the '359 Patent describes that at step 1002, "the OLT broadcasts an Upstream_overhead message carrying the parameters in the general upstream burst overhead parameter set (i.e. set 1) in a downstream direction" and that the "Upstream_overhead message may carry the parameters or the identification of that set 1." *Id*. ¶44 (citing '359 Patent at 9:27-32). The ONU responds to the OLT with "the link quality information—'good' acquired in step 1004[.]" *Id*. (citing '359 Patent at 9:52-56). Then, at step 1006, the OLT "records the link quality information corresponding to the ONU and determines the upstream burst overhead parameter set (e.g., set 3 in this embodiment) suitable for using by the ONU." *Id*. (citing '359 Patent at 10:29-33).

**2. Verizon's "Impossibility" Argument is Incorrect and Legally Unsound**

Verizon appears to argue that, when choosing one way to satisfy the claim elements, the "determining" step requires an impossibility. Brandt-Pearce Dec. ¶¶101-105. Particularly, Verizon breaks down claim 1 and its "or" limitations into "Option 1" and "Option 2," as shown in an annotated claim diagram from Verizon's expert. *See* Brandt-Pearce Dec. ¶102. Verizon argues that in one way of satisfying the claim, "Option 1" in the diagram, it is ***impossible*** to "determine the upstream burst overhead parameters suitable for the optical network unit according to the transmission quality" because, with "Option 1," there would only be a single set of burst parameters from which to determine.[1]

Verizon's argument regarding "Option 1," however, depends on two fundamentally incorrect premises: (1) that it is impossible to "determine" upstream burst overhead parameters when only one set of parameters is available; and (2) that there is only one set of burst parameters

[1] Verizon does not argue that "Option 2" also requires an impossibility. *Id*. ¶ 105. Iarnach's expert states that neither "Option 1" nor "Option 2" requires an impossibility. Schofield Dec. ¶¶ 41-48.

available for any such "determination." Neither premise is accurate in view of the relevant evidence. But even if they were, Verizon's argument should still be rejected as legally unsound.

**a. An OLT Or ONU Can "Determine" Upstream Burst Overhead Parameters When One Set of Parameters Is Available**

Verizon's expert incorrectly argues that an OLT or ONU cannot "determine" upstream burst overhead parameters "when there is only one parameter value or one parameter set available from which to make the determination." Brandt-Pearce Dec. ¶104. But neither the intrinsic nor the extrinsic evidence supports that argument.

For example, the specification uses "determine" to refer to a process where there is only one parameter set (the set broadcasted by the OLT), stating that "[i]n the existing ITU G.984.3 GPON technology standard, these upstream burst overhead parameters are ***determined*** between the OLT and the ONU according to the following method: … the OLT broadcasts a part of the upstream burst overhead parameters required by the OLT…to all ONUs which communicate with the OLT…." *See* '359 Patent at 1:33-50 (emphasis added), *see also* 2:1-4 ("Once the ONU in the GPON system ***determines*** the upstream burst overhead parameters such as preamble and delimiter, these parameters are not updated any more[.]") (emphasis added).

The extrinsic evidence also does not support Verizon's argument. Dictionaries identified by the parties do not so limit a "determination." *See* Ex. U (Am. Century Dictionary) ("determine: 1. find out or establish precisely."); Ex. V (Am. Heritage Dictionary, Fourth Ed). ("determine: 1. To decide, establish, or ascertain definitely."); Brandt-Pearce Dec. ¶104 (citing dictionary definitions using words like "settle" and "decide"). Thus, neither the intrinsic evidence nor the extrinsic evidence supports restricting "determine" to require more than a single possible value.

**b. There is Not Only a Single Set of Burst Parameters From Which to Select**

Verizon's expert argues that, in "Option 1," there must be, at most, one parameter value or

one set of parameters from which to select. Brandt-Pearce Dec. ¶¶101, 104, 105. But that does not follow from the claim language for a number of reasons.

First, the claim is an open-ended "comprising" claim, so the specific limitations of the claim are not the only steps that may occur. *See, e.g.*, *Smith & Nephew, Inc. v. Ethicon, Inc.*, 276 F.3d 1304, 1311 (Fed. Cir. 2001) ("The signal that additional steps may be performed in carrying out a claimed method is the word 'comprising.'") (citing *Vivid Techs., Inc. v. Am. Science & Engineering, Inc.*, 200 F.3d 795, 811 (Fed. Cir. 1999)). Indeed, "the signal 'comprising' is 'generally understood to signify that the claims do not exclude the presence in the accused apparatus or method of factors in addition to those explicitly recited." *Id*.; *see also S3 Inc. v. Nvidia Corp.*, 259 F.3d 1364, 1369-70 (Fed. Cir. 2001) (reversing ruling of indefiniteness).

Here, claim 1 is a comprising claim, so it does not preclude other steps such as sending additional parameter sets to the ONU. In other words, there is no requirement that the sending of a default parameter is the only thing that is sent. Schofield Dec. ¶48. As in the second "or" step and in the specification, the OLT may then send one or more additional, non-default, parameter sets to the ONU. *Id*. At that time, the OLT (or the ONU) can "determine" the parameters suitable for the ONU according to the transmission quality from the available profiles. *Id*.

Second, even if the "determining" step was limited to what's already been mentioned in the claim,[2] then step "1.b" (the OLT "determining and identifying N kinds of upstream burst overhead parameter sets according to different levels of link quality, wherein N is an integer and is larger than zero") allows for multiple sets of parameters.

**c. Even if Verizon's Arguments Were Factually Correct, Their Legal Theory is Unsound and Should be Rejected**

[2] There is no evidence that "determining" is so limited. For example, claim 1 does not recite "determining ***from the N kinds of upstream burst overhead parameter sets identified by the OLT***" or "determining ***from what was received by the ONU in a prior step***."

Even if all of Verizon's arguments were factually accurate—and they are not—there would still not be indefiniteness under the law. For Verizon to even make its argument, it must contrive a scenario where multiple claim elements are limited in very specific ways. But such a manufactured "impossibility" does not render a claim indefinite. *In re Kroekel*, 504 F.2d 1143, 1146 (C.C.P.A. 1974) (reversing finding of indefiniteness by Patent Office Board of Appeals where "the claims may be read in theory to include compositions that are impossible in fact to formulate."); *Maxell, Ltd. v. Amperex Technology Ltd.*, 94 F.4th 1369, 1372-73 (Fed. Cir. 2024) (rejecting argument that claims were indefinite where it is possible to meet both of two limitations, even though one limitation suggests a material is "optional" and another limitation suggests that the same material is "necessarily required").

Here, as in *Kroekel* and *Maxwell*, it is possible to meet both the "N kinds of upstream burst overhead parameter sets" limitation and the "determining" limitation even accepting Verizon's arguments. In other words, if the first limitation is met by N being 2, then there are necessarily more than a single parameter set, if the second limitation ("determining") requires that. It is of no legal relevance that, if N were 1, N could also meet the first requirement, but not the second requirement. *Kroekel*, 504 F.2d ¶1146; *Maxwell*, 94 F.4th at 1372-73.

**G. "common key" ('378 Claims 1-8)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | Indefinite. |

Verizon argues "common key" is indefinite, presumably because the claims require a "common key," while the specification refers to a "public key." But as Mr. Schofield sets forth in his declaration, a POSITA would understand "common key" with reasonable certainty. Schofield Dec. ¶49. Notably, even though Verizon's expert Dr. Brandt-Pearce opined that other terms were indefinite, she offers no opinion on "common key."

There are two general kinds of encryption – symmetric and asymmetric. Schofield Dec. ¶67. Symmetric encryption uses a single key for both encryption and decryption. *Id*. In symmetric encryption, the sender uses an encryption key to encrypt data, and the recipient uses the same key to decrypt the data. *Id*. Asymmetric encryption uses two keys, a first key to encrypt the data and a second key to decrypt the data. *Id*. ¶68. The term "common key" is typically associated with symmetric encryption, while "public key" refers to a key used in asymmetric encryption. *Id*. ¶69.

**1. Intrinsic Evidence**

Verizon contends "common key" is indefinite because the specification discloses a "public key" rather than a "common key." But that was likely a simple translation error from Chinese to English. Every claim and every embodiment refers to symmetric encryption.

Every claim of the '378 Patent uses "common key" in its generally understood manner, which is a key used in symmetrical encryption. Schofield Dec. ¶54. Claim 1 requires the OLT to generate a common key, use the common key to encrypt the multicast service data, and then send the common key to an ONU that is successfully activated on the network. Several other claims (3, 5, 6, and 8) require the ONU to send the common key to the ONU. Claim 2 further requires that the ONU use the common key to decrypt the multicast service data the ONU receives from the OLT. In every instance, the same "common key" is used to both encrypt and decrypt data. There are no claims in the '378 Patent that require encrypting data with a first key and then decrypting the data with a different key. Schofield Dec. ¶54.

Every embodiment teaches that the same "key" is used to both encrypt and decrypt data. For example, Figure 1 discloses "an embodiment of transmitting the public key in the GPON system." '378 Patent at 4:40-43. In step 110, the OLT "generates a public key" that is applied in the multicast service. *Id*. at 4:44-45. In step 120, the OLT uses the public key to encrypt the multicast service data. *Id*. at 4:46-47. In step 140, the OLT transmits the public key to the ONU.

*Id*. at 4:54-56. In step 150, the ONU receives the public key from the OLT and decrypts the multicast service data "with this key." *Id*. at 5:1-3.

Figures 2 and 4 contain similar disclosures. In both embodiments, the OLT encrypts data and the ONU decrypts data with the same public key. *See* '378 Patent at 5:30-32, 6:37-40. And like the claims, there are no embodiments where different keys are used to encrypt and decrypt the data. Schofield Dec. ¶55. A POSITA would recognize that "public key" in the specification and "common key" in the claims are used in the same manner and have the same meaning in the context of the '378 Patent. *Id*. ¶59. Both refer to an encryption key used in symmetric encryption. *Id*.

The prosecution history provides further support for Iarnach's position that "common key" in the '378 claims and "public key" in the '378 specification have the same meaning and refer to symmetric encryption. During prosecution, the original draft claims used the phrase "public key." In the draft claims, the OLT generates a "public key," encrypts data using the public key, and transmits the public key to the ONU. The ONU then uses the public key to decrypt the multicast data. Ex. W ('378 FH) at -220.

In the first office action, the examiner rejected the draft claims under 35 U.S.C. §112 because of the phrase "public key." *Id*. at -268. The examiner explained that the term "public key" was generally understood to refer to asymmetric encryption, where "one key locks or encrypts the plaintext, and the other unlocks or decrypts the ciphertext. ***Neither key can perform both functions by itself***." *Id*. (emphasis in original). However, the '378 application used "public key" to mean "common key," as used in symmetric encryption. *Id*. The examiner further explained that for the purposes of evaluating prior art, he would construe "public key" to mean "common key." *Id*. As Mr. Schofield explained, "the examiner immediately recognized that the '378 claims and specification were directed to symmetric encryption, not asymmetric encryption." Schofield Dec.

¶61. The applicant replaced the term "public key" with "common key" in the draft claims (Ex. W ('378 FH) at -395), and the examiner withdrew his rejection under §112. *Id*. at -405.

Verizon's alleged confusion between "common key" and "public key" in the '378 Patent may be the result of a translation issue. The '378 Patent claims priority to a Chinese patent application, which published the original draft claims in Chinese. *See* Ex. W ('378 FH) at -1141-55 (the "Chinese Application"). The Chinese Application was translated to English and submitted to the USPTO during prosecution. *Id*. at -1207-26 (the "English Translation"). The Chinese Application contains the characters 公共密钥 (gōng gong mi yao), which were translated to "public key" in the English Translation. Redmon Dec. ¶9. The Chinese characters 公共 (gōng gong) can mean either "public" or "common," depending on the context. *Id*. In fact, in encryption-related patents, both "public key" and "common key" have been translated to 公共密钥 (gong gong mi yao). *Id*. Ms. Redmon opined that both "public key" and "common key" can be reasonable translations of the Chinese Application. *Id*. To put it another way, had the Chinese Application been translated in a different reasonable manner, the entire '378 Patent would refer to "common key," and Verizon would have no indefiniteness argument.

**F. "probabilistically splitting in time" ('013 Claim 1)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|
| No construction necessary; plain and ordinary meaning. | "randomization of the time instances the members of the ONU group that have originally attempted discovery at about the same time are forced to repeat the activation attempt" |

This term is readily understood without further construction. Claim 1 requires transmitting a message addressed to a subset of ONUs on a PON system. Within that subset is a "first group" of ONUs that have not yet been discovered. The discovery phases of the ONUs in the first group are then probabilistically split in time. '013 Patent at 10:61-11:2 (claim 1). The specification

explains that one way to probabilistically split ONUs is by assigning certain ONUs a probability "p" and other ONUs a probability "1-p." *Id*. at 7:55-59. This probability value helps determine when a particular ONU can enter various discovery phases. *Id*. at 7:59-62.

"Probabilistic" has a known meaning. The American Heritage Dictionary defines probabilistic as "of, based on, or affected by probability, randomness, or chance." Ex. X. The IEEE Standard Dictionary defines probabilistic as "a model in which the results are determined by using one or more random variables to represent uncertainty about a process." Ex. Y. These definitions are consistent with how the term is used in the '013 Patent.

Verizon seeks to limit this term to a particular embodiment. In support, Verizon's expert Dr. Brandt-Pearce cites a single paragraph from a single embodiment. *See* Brandt-Pearce Dec. ¶112. That paragraph is expressly limited to "***some implementations***, when more than one ONU, rogue or otherwise, attempt discovery at about the same time." '013 Patent at 8:20-21 (emphasis added). The "definition" Verizon cites is directed to this particular embodiment—where more than one ONU attempt discovery at about the same time.

The flaw in Verizon's construction is that it treats the patent's description of a particular embodiment as a global definition. For example, Verizon argues probabilistic splitting requires "members of the ONU group that have originally attempted discovery at about the same time." But there is no requirement in the claims that probabilistically splitting in time must be among ONUs "that have originally attempted discovery at about the same time." All claim 1 requires is that that ONUs be part of a "first group," meaning "ONUs that have not yet being discovered." '013 Patent at 10:64-65. There is no requirement or mention of when the ONUs attempted discovery. Moreover, "at about the same time" introduces unnecessary ambiguity into the claims.

**G. "rogue ONU" ('013 Claim 1)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|

| | |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | "ONU that transmits optical power up the ODN in violation of the standard parameters" |

Verizon attempts to limit "rogue ONU" to a particular embodiment, citing 4:22-32 as providing an explicit definition for the term. But that passage makes clear it is an example, not a global definition. *See* '013 Patent at 4:22-32 ("An ONU that transmits optical power up the ODN in violation of the standard parameters ***is sometimes called*** a 'rogue ONU.'" (emphasis added)).

In addition to limiting the claims to a particular embodiment, there are two additional problems with Verizon's construction. ***First***, Verizon seeks to define "rogue ONU" based on a particular behavior of an ONU, but the specification teaches that Verizon's proposed construction is just one example behavior of a rogue ONU. The specification explains that "the transmission burst 320 exhibited by rogue ONU 218 ***can be*** transmitted optical power up an ODN in violation of the PON protocol." '013 Patent at 3:51-55 (emphasis added); *see also id*. at 9:12-15 ("In one aspect, the ONU is rogue because while the ONU is coupled to the PON, the ONU attempts to transmit in time slots in which it has not been allocated transmission opportunities."). "Can be" suggests a rogue ONU's behavior is not limited to Verizon's proposed construction.

***Second***, Verizon's proposed construction injects ambiguity with the phrase "the standard parameters." It is unclear what standard or parameters Verizon refers to. The specification identifies at least five different PON standards—EPON, BPON, G-PON, 10G-PON, and XG-PON. '013 Patent at 3:13-17. Even Verizon's expert Dr. Brandt-Pearce attempts to soften Verizon's proposal by removing "the standard" from her analysis. She characterizes Verizon's position as "transmitting optical power up the ODN outside acceptable parameters." Brandt-Pearce Dec. ¶116.

**H. "transmitting… a first message addressing only a subset of all ONUs on the PON system; and wherein the subset includes at least one of a first group of ONUs that have not yet being discovered and a second group of ONUs that are not identifiable" ('013 Claim 1)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|

| | |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | Indefinite. |

Verizon makes an improper enablement argument that it characterizes as an indefiniteness argument. *See Cywee Group v. Samsung Elecs. Co.*, 2018 U.S. Dist. LEXIS 244829, at *14 (E.D. Tex. Aug. 14, 2018). Verizon's argument is that a POSITA would not understand how to make the claimed invention, not that the scope of the claim is uncertain. Verizon's expert opines, "In my opinion, a POSITA would not know how to perform the step of transmitting a first message addressing only a subset of ONUs that includes ONUs that 'have not yet being' discovered and ONUs that are not identifiable." Brandt-Peace Dec. ¶118. Further, she opines, "In my opinion, a POSITA would not know how to send a message to only a subset of ONUs that includes ONUs that are not merely unidentified at a certain time, but which are instead 'not identifiable.'" *Id*. at ¶121. That is not indefiniteness, where the test is whether a POSITA can understand the scope of the claims with reasonable certainty. This term passes that test.

This term requires transmitting a first message addressing only a subset of ONUs on the PON system, the subset including two groups—ONUs that have not yet been discovered, and ONUs that are not identifiable. '013 Patent at 10:61-67. This is straightforward: the limitation defines an action (transmission) and certain recipients of the action (the two groups of ONUs). A POSITA reading this limitation would have no issues discerning its scope. *See* Schofield Dec. ¶74.

Verizon's enablement arguments are wrong. First, Verizon contends there is no way for an OLT to message an ONU that has not yet been discovered. The specification addresses this exact scenario. When an ONU is activated on a network, the ONU declares its presence by announcing a globally unique identifier. '013 Patent at 3:57-61. The ONU then waits for the OLT to assign it a PON-specific logical ID. *Id*. at 3:61-62. Once the ONU receives a logical ID, it exits the discovery phase and enters the ranging stage. *Id*. at 3:62-63. "A POSITA would understand that,

before the ONU has completed the discovery process, it must be able to communicate with the OLT to 'declare its presence' and obtain a PON-specific logical ID." Schofield Dec. ¶84. In fact, the specification teaches that one way to isolate rogue ONUs is to send a DISABLE message to ONUs that have not yet been assigned a PON-specific logical ID." '013 Patent at 5:48-51.

Second, Verizon contends there is no way for an OLT to message an ONU that is not identifiable. Once again, the specification addresses this. In certain instances, an ONU that is not "included in the database of known ONUS maintained by the OLT" may attempt to connect to the PON. '013 Patent at 5:36-38. When this occurs, "the OLT has no effective identification for the offending ONU and has no finite pool of ONU identities to which the offending ONU may belong." *Id*. at 5:38-41. The specification then provides several solutions to this problem, including how to force certain ONUs to enter the DISABLE state. *See, e.g.*, *id*. at 5:44-6:18, 8:39-48. As Mr. Schofield explains, "A POSITA would understand that when a rogue ONU is not identifiable, the OLT is still able to message the ONU. The issue (that the '013 Patent is directed towards solving) is that an unidentifiable rogue ONU is more difficult to mitigate, not that the OLT cannot message the unidentifiable ONU (which it can)." Schofield Dec. ¶88.

### I. "detecting presence" ('013 Claim 1)

| Iarnach's Construction | Defendant's Construction |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | Indefinite. |

Verizon contends "detecting presence" is indefinite because the specification describes the difficulty in detecting the presence of a rogue ONU on a PON. Brandt-Pearce Dec. ¶123. In other words, Verizon contends this term is indefinite because the '013 Patent solves a difficult problem. But the fact that the patent solves a difficult problem highlights its novelty, not its indefiniteness.

The specification describes multiple ways to detect the presence of a rogue ONU. First, a rogue ONU can be detected by the transmission of signals in violation of certain PON protocol.

'013 Patent at 3:51-55. Second, when an ONU connects to a PON, the OLT determines whether the ONU is "legitimate" and therefore allowed to operate on the PON. *Id*. at 4:62-65. An "illegitimate" ONU is another example of a rogue ONU. Once the presence of a rogue ONU is detected, the '013 Patent teaches a technique for isolating and disabling the rogue ONU.

Once again, Verizon makes an enablement argument masquerading as an indefiniteness argument. Verizon contends the specification does not fully describe how an OLT detects the presence of a rogue ONU. Brandt-Pearce Dec. ¶123. But that is not an indefiniteness argument. The claims require detecting the presence of a rogue ONU, and the specification provides multiple examples of how to detect a rogue ONU. *See* Schofield Dec. ¶¶94-97. Nothing more is required to prove definiteness.

**J. "random independent delays" ('013 Claim 2)**

| **Iarnach's Construction** | **Defendant's Construction** |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | Indefinite. |

This term is readily understood in the context of the claims and specification. Conversely, Verizon's argument is based on a hyper-technical reading of the words "random" and "independent" that is divorced from the specification. No construction is necessary.

Claim 2 requires a "second group of ONUs that are not identifiable." '013 Patent at 10:65-67. The system applies a message to the second groups for enabling, "with random independent delays, ONUs in the second group that are already in the Emergency Stop state." *Id*. at 11:4-7. From the claim language, it is apparent that random independent delays are associated with ONUs in the Emergency Stop state, and they are used as part of the enablement process (leaving the Emergency Stop state).

The purpose of the random independent delays is to minimize collisions between ONUs attempting to enter the discovery phase. Once an ONU receives an Enable message (which permits

it to leave the Emergency Stop state), the ONU processes the message "by generating an independent random value interpreted as a timing parameter or counting parameter." '013 Patent at 6:41-47. The ONU then waits a period of time equal to that timing parameter before presenting its credentials to the OLT. *Id*. at 6:44-47. This is consistent with one of the goals of the '013 Patent, which is to minimize collisions during the discovery phase. *Id*. at 4:67-5:3 ("Collisions of upstream transmissions during the quiet window may be unavoidable in principle and practice. Therefore PON protocol can provide an effective collision resolution procedure.").

In light of these teachings, a "random independent delay" is easily understood as a delay intended to minimize collisions between ONUs. The delay is both random (which Dr. Brandt-Pearce concedes is a well-known term (Brandt-Pearce Dec. ¶126)) and independent (with respect to other ONUs). A POSITA would readily understand this term without further construction. Schofield Dec. ¶100.

**K. "ensuring the ONU is fully powered up, synchronized, and capable of responding to both upstream and downstream traffic and control before exiting the first state or the second state" ('892 Claim 1)**

| Iarnach's Construction | Defendant's Construction |
|---|---|
| No construction necessary;<br>plain and ordinary meaning. | Indefinite. |

Verizon makes an improper impossibility or enablement argument that it characterizes as an indefiniteness argument. *See Cywee Group*, 2018 U.S. Dist. LEXIS 244829, at *14. Verizon's expert opines, "This limitation, therefore, recites a functional impossibility based on the limitations set forth in the claim regarding the parameters that define the first and second state." Brandt-Peace Dec. ¶110. That is not indefiniteness.

This term requires that before the ONU enters a full power Active state, both the transmitter and the receiver must be fully powered, synchronized, and ready to both transmit and receive traffic and control signals. *See* '892 Patent, Table 3. In a Final Office Action, the Examiner stated

that this term was disclosed by the ITU-T G.987.3 Standard. Schofield Dec. ¶124; IARNACH_0002059, at -498 (*see* Ex. Z). This term clarifies when the ONU should be placed into a fully operational mode. The '892 claims, like the ITU-T G.987.3 Standard, require that the change in the power and operational condition of the ONU occurs before entry into the high-power state.

Verizon's arguments are wrong. First, Verizon claims that "the ONU cannot be both in the first state (with receiver ON and transmitter OFF) and be fully powered up (with receiver ON and transmitter ON), which is required to occur *before* the ONU exits the first state." Brandt-Peace Dec. ¶110. In the ITU-T G.987.3 Standard, the Listen state requires that "the ONU receiver is on; the transmitter is off." Schofield Dec. ¶125; IARNACH_0002059, at -607. Additionally, the Listen state requires "Before exiting this state, the ONU ensures that it is fully powered up and capable of responding to both upstream and downstream traffic and control." *Id.* Similarly, Table 3 of the '892 Patent describes the Listen state as "A low power mode state in which the ONU has its transmitter off, but the receiver on." '892 Patent at Table 3. The description also states, "Before exiting this state, the ONU ensures that it is fully powered up, synchronized, and capable of responding to both upstream and downstream traffic and control." *Id.*

Second, Verizon claims that "the ONU cannot be both in the second state (with receiver OFF and transmitter OFF) and be fully powered up (with receiver ON and transmitter ON), which is required to occur *before* the ONU exits the second state." Brandt-Peace Dec. ¶110. In the ITU-T G.987.3 Standard, the Asleep state requires that "the ONU shuts down both its receiver and transmitter." Schofield Dec. ¶125; IARNACH_0002059, at -607. Additionally, the Asleep state requires "Before exiting this state, the ONU ensures that it is fully powered up, synchronized, and capable of responding to both upstream and downstream traffic and control." *Id.* Similarly, Table

3 of the '892 Patent describes the Asleep state as "A low power mode state in which the ONU shuts down both its receiver and transmitter." '892 Patent, Table 3. The description continues, "Before exiting this state, the ONU ensures that it is fully powered up, synchronized, and capable of responding to both upstream and downstream traffic and control." *Id.*

A POSITA would understand that ensuring the ONU is fully powered up, synchronized, and capable of responding to both upstream and downstream traffic control before exiting a low power state allows for the ONU to take the time to perform these actions before it is required to be in the full power Active state. Schofield Dec. ¶129. Therefore, a POSITA can understand the scope of this term with reasonable certainty.

## II. Conclusion

Verizon erroneously argues that most disputed terms are indefinite. For the terms Verizon proposes constructions, it seeks narrow constructions to avoid infringement. The Court should reject Verizon's transparent strategy and instead adopt Iarnach's proposed constructions.

Dated: January 28, 2025

Respectfully submitted,

*/s/ Blaine Larson*

Demetrios Anaipakos
Texas Bar No. 00793258
danaipakos@aatriallaw.com
Amir H. Alavi
Texas Bar No. 00793239
aalavi@aatriallaw.com
Michael McBride
Texas Bar No. 24065700
mmcbride@aatriallaw.com
ALAVI & ANAIPAKOS PLLC
609 Main Street, Suite 3200
Houston, Texas 77002
Telephone: (713) 751-2362
Facsimile: (713) 751-2341

Michael F. Heim
Texas Bar No. 09380923
mheim@hpcllp.com
Eric J. Enger
Texas Bar No. 24045833
abullwinkel@hpcllp.com
R. Allan Bullwinkel
Texas Bar No. 24064327
abullwinkel@hpcllp.com
Alden G. Harris
Texas Bar No. 24083138
aharris@hpcllp.com
Blaine A. Larson
Texas Bar No. 24083360
blarson@hpcllp.com
Lily R. Glick
Texas Bar No. 24131333
lglick@hpcllp.com
HEIM PAYNE & CHORUSH LLP
609 Main Street, Suite 3200
Houston, Texas 77002
Telephone: (713) 221-2000
Facsimile: (713) 221-2021

Andrea L. Fair
Texas Bar No. 24078488
andrea@millerfairhenry.com

Miller, Fair, Henry PLLC
1507 Bill Owens Pkwy
Longview, Texas 75604
Telephone: (903) 757-6400
Facsimile: (903) 757-2323

*Counsel for Plaintiff Iarnach Technologies Ltd.*

**CERTIFICATE OF SERVICE**

Pursuant to the Federal Rules of Civil Procedure and Local Rule CV-5, I hereby certify that, on January 28, 2025, a copy of the foregoing was served via CM/ECF.

*/s/ Blaine Larson*
Blaine Larson